

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method, comprising:
receiving, by a network device, a packet fragment of a packet;
determining, by said network device, if said received packet fragment is a head fragment or a non-head fragment of said packet; and
if the received packet fragment is determined to be the head fragment of said packet:

processing, by said network device, the head fragment to determine a destination address for said head fragment, and forwarding by said network device said head fragment to said determined destination address; and

applying, by said network device, said destination address for said head fragment, which was determined by said processing of said head fragment, to at least one non-head fragment of said packet that was stored prior to receiving said head fragment and to at least one non-head fragment of said packet that is received after said forwarding said head fragment,

wherein said applying includes adding to the non-head fragments, by said network device, a routing tag that includes said destination address that was determined by said processing of said head fragment.

2. (Currently Amended) The method of claim 1 wherein said processing the head fragment includes generating, by said network device, a session pointer data structure having the destination address, the method further comprising after processing the head fragment:

locating, by said network device, said destination address from the session pointer data structure that was generated during the processing of the head fragment; and

wherein—said applying said destination address to said non-head fragments includes applying, by said network device, the destination address located from said session pointer data structure to said non-head fragments.

3. (Previously Presented) The method of claim 1 wherein said receiving said packet fragment includes receiving, by said network device, a fragment of an IP-fragmented packet.

4. (Currently Amended) The method of claim 1 wherein the head fragment includes all header information from said packet, and wherein the non-head fragments include packet data from said packet.

5. (Currently Amended) The method of claim 1 wherein both the head and non-head fragments contain duplicative header information from said packet, ~~wherein~~ and:

said processing the head fragment includes processing, by said network device, one of the fragments having the header information as the head fragment; and

said applying includes designating, by said network device, other ones of the fragments having the header information as the non-head fragments.

6. (Canceled)

7. (Previously Presented) The method of claim 1 wherein said routing tag specifies the destination address, which is located at a receiver end outside of an exit point of said network device.

8. (Previously Presented) The method of claim 1 wherein said processing the head fragment includes processing, by said network device, the head fragment according to at least one of Layer 4 through Layer 7 criteria.

9. (Currently Amended) A method, comprising:
determining a destination address for a received head fragment of a packet;
forwarding said head fragment to said determined destination address; and
applying the determined destination address to any corresponding non-head fragment of said packet that is received subsequently after said forwarding the head fragment and to any corresponding stored non-head fragment of said packet that is received prior to receiving the head fragment,

wherein—said applying the determined destination address to the non-head fragments includes overwriting a destination address field of these non-head fragments with said determined destination address.

10. (Previously Presented) The method of claim 9, further comprising forwarding the non-head fragments having the determined destination address applied thereto.

11. (Currently Amended) ~~The method of claim 9, further A method,~~
comprising:

generating a session associated with the received head fragment of a packet, said generated session being a period of time to store forwarding information for the packet or a fragment thereof;

~~obtaining the a destination address of the head fragment from the generated session, and wherein said;~~

applying the ~~determined~~ obtained destination address to any corresponding non-head fragment of said packet that is received subsequently after said forwarding the head fragment, said applying including overwriting a destination address field of said any corresponding non-head fragment with said obtained destination address ~~includes applying the~~

~~destination address obtained from said session to said any corresponding non-head fragment received subsequently after said forwarding the head fragment; and~~

~~storing a plurality of any corresponding non-head fragments fragment of the packet that is received before said generating the session if the session has not been generated, and wherein said applying the ~~determined~~ obtained destination address to said stored any corresponding stored non-head fragment of said packet by overwriting a destination address field of said stored any corresponding non-head fragment with said obtained includes subsequently applying the determined destination address to said stored plurality of non-head fragments, after the session has been generated.~~

12. (Canceled)

13. (Currently Amended) An article of manufacture, comprising:

a computer-readable medium having instructions stored thereon that are executable by a processor to handle fragments, by:

determining if a fragment of a packet is either a head fragment or a non-head fragment;

processing the fragment if it is determined to be said head fragment to determine a destination address for said head fragment and forwarding said head fragment to said determined destination address; and

applying the determined destination address to any corresponding non-head fragment of said packet that is received subsequently after said forwarding the head fragment and to any corresponding stored non-head fragment of said packet that is received prior to receiving the head fragment,

wherein said applying the determined destination address includes applying to the non-head fragments a routing tag that includes said determined destination address.

14. (Previously Presented) The article of manufacture of claim 13 wherein the computer-readable medium further includes instructions stored thereon that are executable by said processor to handle fragments, by:

forwarding the non-head fragments having the determined destination address applied thereto.

15. (Currently Amended) The article of manufacture of claim 13 wherein the computer-readable medium further includes instructions stored thereon that are executable by said processor to handle fragments, by:

generating a session associated with the head fragment, said generated session being a period of time to store forwarding information for the packet or a fragment thereof;

obtaining the destination address from the generated session, and ~~wherein~~—said applying the determined destination address to any corresponding non-head fragment of said packet that is received subsequently after said forwarding the head fragment includes applying the destination address obtained from said session to said any corresponding non-head fragment received subsequently after said forwarding the head fragment; and

storing a plurality of corresponding non-head fragments if the session has not been generated, and ~~wherein~~—said applying the determined destination address to any corresponding stored non-head fragment of said packet includes subsequently applying the determined destination address to said stored plurality of non-head fragments after the session has been generated.

16. (Currently Amended) The article of manufacture of claim 13 wherein said routing tag specifies the destination address, which is located at a receiver end outside of an exit point of a network device that is ~~adapted to forward~~ forwards the non-head and head fragments.

17. (Currently Amended) A system, comprising:

a means for determining if a fragment of a packet is either a head fragment or a non-head fragment;

a means for processing the fragment if it is determined to be a head fragment to determine a destination address for said head fragment;

a means for forwarding said head fragment to said determined destination address; and

a means for applying the determined destination address to any corresponding non-head fragment of said packet that is received subsequently after said forwarding the head fragment and to any corresponding stored non-head fragment of said packet that is received prior to receiving the head fragment,

~~wherein~~—said means for applying the determined destination address to the non-head fragments overwrites a destination address field of these non-head fragments with said determined destination address.

18. (Previously Presented) The system of claim 17 wherein said means for forwarding further forwards the non-head fragments having the determined destination address applied thereto.

19. (Currently Amended) The system of claim 17 wherein said means for processing further:

generates a session associated with the head fragment, said generated session being a period of time to store forwarding information for the packet or a fragment thereof; and

obtains the destination address from the session, and

~~wherein~~—said means for applying the determined destination address that includes said destination address to any corresponding non-head fragment of said packet that is received subsequently after said forwarding the head fragment applies the destination address obtained from said session to said any corresponding non-head fragment received subsequently after the head fragment; and

the system further comprising:

a means for storing a plurality of corresponding non-head fragments if the session has not been generated, and ~~wherein~~—said means for applying the determined destination address

to any corresponding stored non-head fragment of said packet subsequently applies the determined destination address to said stored plurality of non-head fragments after the session has been generated.

20. (Currently Amended) A system, comprising:

an entry point to receive packet fragments of a packet;

a network device coupled to the entry point to determine if a packet fragment received at the entry point is a head fragment of said packet;

a storage unit coupled to the network device to store non-head fragments of said packet that are received at the entry point prior to receipt of said head fragment;

~~wherein the network device is adapted to forward~~ forwards the head fragment to be processed to determine a destination address for said head fragment; and

an exit point coupled to the network device, ~~wherein said non-head fragments stored at the storage unit are updated at the exit point with said destination address that is determined from said processing of the head fragment, the exit point being adapted to apply~~ applies said determined destination address to at least one non-head fragment of said packet that is received after said head fragment is forwarded to said determined destination address,

~~wherein the exit point is adapted to said apply~~ applies the determined destination address by an overwrite of a destination address field of said at least one non-head fragment with said determined destination address.

21. (Currently Amended) The system of claim 20 wherein the network device

~~includes a switch adapted to receive said fragments, which were fragmented from said packet by~~
a router.

22. (Previously Presented) The system of claim 20 wherein the entry and exit

points are included as parts of at least one software-based function.

23. (Previously Presented) The system of claim 20 wherein the processing of the head fragment includes at least one from a plurality of Layer 4 through Layer 7 processing.

24. (Previously Presented) The system of claim 20 wherein the processing of the head fragment to determine said destination address is performed in the network device.

25. (Currently Amended) The system of claim 20, further comprising at least another network device coupled to the exit point ~~and being adapted~~ to perform said processing of the head fragment.

26. (Previously Presented) The system of claim 20, further comprising another storage unit, coupled to the exit point, to store the destination address.

27. (Original) The system of claim 20, further comprising a software program to operate in conjunction with the network device to handle the non-head and head fragments.

28. (Currently Amended) An apparatus to handle packet fragments, the apparatus comprising:

a network device ~~adapted~~ to receive a head fragment of a packet, to process the received head fragment to determine a destination address for said head fragment and to forward the head fragment to said determined destination address, and to apply the determined destination address to any corresponding non-head fragment of said packet that is received subsequently after the head fragment is forwarded and to any corresponding stored non-head fragment that is received prior to receipt of the head fragment,

~~wherein said network device is adapted to~~ performs said apply said determined destination address by addition, to said non-head fragments, of a routing tag that includes said determined destination address.

29. (Currently Amended) The apparatus of claim 28 wherein said network device includes a switch ~~adapted~~ to receive said fragments, which were fragmented from said packet by a router.

30. (Previously Presented) The apparatus of claim 28 wherein said routing tag specifies the destination address, which is located at a receiver end outside of an exit point of said network device.

31. (Currently Amended) The apparatus of claim 28 wherein said network device ~~is adapted to~~ performs said process said head fragment according to at least one of Layer 4 through Layer 7 criteria.

32. (Canceled)

33. (Currently Amended) An apparatus to handle packet fragments, the apparatus comprising:

a switch ~~adapted~~ to receive a head fragment of a packet, to process the received head fragment to determine a destination address for said head fragment, and to apply the determined destination address to any corresponding non-head fragment of said packet that is received subsequently after the head fragment and to any corresponding stored non-head fragment that is received prior to the head fragment,

~~wherein said switch is adapted to~~ performs said apply said determined destination address by addition of a routing tag to said non-head fragments that includes said determined destination address, and

~~wherein said switch is adapted to~~ performs said process said head fragment according to at least one of Layer 4 through Layer 7 criteria.

34. (Currently Amended) The apparatus of claim 33 wherein said switch ~~is adapted to~~ performs said apply said determined destination address to said any corresponding

non-head fragment that is received subsequently after the head fragment is forwarded to said destination address.

35. (Previously Presented) The apparatus of claim 33 wherein said routing tag specifies the destination address, which is located at a receiver end outside of an exit point of said switch.